

What is claimed is:

1. A method for identifying animal species comprising:
amplifying a DNA sequence by PCR using a DNA in a sample as a template and animal-specific DNA sequences as a primer pair, wherein the animal-specific DNA sequences are derived from a ATP synthase subunit 8 gene or a region proximal thereto of a mitochondrial genome, and
detecting the amplified DNA sequence.
2. The method of claim 1, wherein the animal is a mammal.
3. The method of claim 2, the mammal is selected from the group consisting of cattle, sheep, goat, deer, pig, horse, rabbit, and whale.
4. The method of claim 2 or 3, wherein the primer pair is a combination of the DNA sequence of SEQ ID NO: 1 and the DNA sequence of SEQ ID NO: 2.
5. The method of claim 1, wherein the animal is a ruminant.
6. The method of claim 5, the ruminant is selected from the group consisting of cattle, sheep, goat, and deer.
7. The method of claim 5 or 6, wherein the primer pair is a combination of the DNA sequence of SEQ ID NO: 3 and the DNA sequence of SEQ ID NO: 4, or a combination of the DNA sequence of SEQ ID NO: 5 and the DNA sequence of SEQ ID NO: 6.
8. The method of claim 1, wherein the animal is a cattle.

9. The method of claim 8, wherein the primer pair is a combination of DNA sequences selected from the group consisting of the following DNA sequence combinations: SEQ ID NO: 9 and SEQ ID NO: 13; SEQ ID NO: 9 and SEQ ID NO: 12; SEQ ID NO: 11 and SEQ ID NO: 13; SEQ ID NO: 10 and SEQ ID NO: 12; SEQ ID NO: 11 and SEQ ID NO: 12; SEQ ID NO: 8 and SEQ ID NO: 12; and SEQ ID NO: 14 and SEQ ID NO: 15.

10. The method of claim 1, wherein the animal is a pig.

11. The method of claim 10, wherein the primer pair is a combination of the DNA sequence of SEQ ID NO: 17 and the DNA sequence of SEQ ID NO: 19, or a combination of the DNA sequence of SEQ ID NO: 18 and the DNA sequence of SEQ ID NO: 22.

12. The method of claim 1, wherein the animal is a sheep.

13. The method of claim 12, wherein the primer pair is a combination of the DNA sequence of SEQ ID NO: 23 and the DNA sequence of SEQ ID NO: 24.

14. The method of claim 1, wherein the animal is a goat.

15. The method of claim 14, wherein the primer pair is a combination of the DNA sequence of SEQ ID NO: 25 and the DNA sequence of SEQ ID NO: 26.

16. The method of claim 1, wherein the animal is a chicken.

17. The method of claim 16, wherein the primer pair is a combination of the DNA sequence of SEQ ID NO: 28 and the DNA sequence of SEQ ID NO: 30.
18. The method of claim 1, wherein the animal is a fish.
19. The method of claim 18, the fish is selected from the group consisting of sardine, flatfish, salmon, Alaska Pollack, tuna, and lady crab.
20. The method of claim 18 or 19, wherein the primer pair is a combination of the DNA sequence selected from the group consisting of SEQ ID NOS: 32, 34, 38 and 39 and the DNA sequence selected from the group consisting of SEQ ID NOS: 33, 35, 36, 37, 40, and 41.
21. The method of any one of claims 1 to 20, wherein the sample is selected from a group consisting of raw meat, raw fish, processed meat food products, processed fish food products, food products containing processed meat, food products containing processed fish, blood, hair, body fluids, milk, milk processing products, meat and bonemeal, bonemeal, fishmeal, fish soluble, and feed, fertilizer, and feed additive containing them.
22. A primer pair for detection of a mammal-specific DNA, the primer pair being a combination of the DNA sequence of SEQ ID NO: 1 and the DNA sequence of SEQ ID NO: 2.
23. The primer pair of claim 22, the mammal is selected from the group consisting of cattle, sheep, goat, deer, pig, horse, rabbit, and whale.
24. A primer pair for detection of a ruminant-specific DNA, the primer

pair being a combination of the DNA sequence of SEQ ID NO: 3 and the DNA sequence of SEQ ID NO: 4, or a combination of the DNA sequence of SEQ ID NO: 5 and the DNA sequence of SEQ ID NO: 6.

25. The primer pair of claim 24, the ruminant is selected from the group consisting of cattle, sheep, goat, and deer.

26. A primer pair for detection of a cattle-specific DNA, the primer pair being a combination of DNA sequences selected from the group consisting of the following DNA sequence combinations: SEQ ID NO: 9 and SEQ ID NO: 13; SEQ ID NO: 9 and SEQ ID NO: 12; SEQ ID NO: 11 and SEQ ID NO: 13; SEQ ID NO: 10 and SEQ ID NO: 12; SEQ ID NO: 11 and SEQ ID NO: 12; SEQ ID NO: 8 and SEQ ID NO: 12; and SEQ ID NO: 14 and SEQ ID NO: 15.

27. A primer pair for detection of a pig-specific DNA, the primer pair being a combination of the DNA sequence of SEQ ID NO: 17 and the DNA sequence of SEQ ID NO: 19, or a combination the DNA sequence of SEQ ID NO: 18 and the DNA sequence of SEQ ID NO: 22.

28. A primer pair for detection of a sheep-specific DNA, the primer pair being a combination of the DNA sequence of SEQ ID NO: 23 and the DNA sequence of SEQ ID NO: 24.

29. A primer pair for detection of a goat-specific DNA, the primer pair being a combination of the DNA sequence of SEQ ID NO: 25 and the DNA sequence of SEQ ID NO: 26.

30. A primer pair for detection of a chicken-specific DNA, the primer pair being a combination of the DNA sequence of SEQ ID NO: 28 and the DNA

sequence of SEQ ID NO: 30.

31. A primer pair for detection of a fish-specific DNA, the primer pair being a combination of the DNA sequence selected from the group consisting of SEQ ID NOS: 32, 34, 38 and 39 and the DNA sequence selected from the group consisting of SEQ ID NOS: 33, 35, 36, 37, 40, and 41.

32. The primer pair of claim 31, the fish is selected from the group consisting of sardine, flatfish, salmon, Alaska Pollack, tuna, and lady crab.

33. A primer pair for detection of a plant-specific DNA, the primer pair being a combination of the DNA sequence of SEQ ID NO: 42 and the DNA sequence of SEQ ID NO: 43.

34. A method for detecting animal-derived components present in mixed feed comprising:

amplifying a DNA sequence by PCR using a DNA in a sample as a template and animal-specific DNA sequences as a primer pair, wherein the animal-specific DNA sequences are derived from a ATP synthase subunit 8 gene or a region proximal thereto of a mitochondrial genome, and
detecting the amplified DNA sequence.

35. A kit for detecting an animal-derived component present in a sample comprising: at least one of primer pair according to any of claims 22 to 32.

36. The kit of claim 35, further comprising a primer pair for detection of a plant-specific DNA, the primer pair being a combination of the DNA sequence of SEQ ID NO: 42 and the DNA sequence of SEQ ID NO: 43.

37. A method for detecting plant-derived components present in sample comprising:

amplifying a DNA sequence by PCR using a DNA in a sample as a template and plant-specific DNA sequences as a primer pair, wherein the plant-specific DNA sequences are derived from a ATP synthase subunit 8 gene or a region proximal thereto of a mitochondrial genome, and

detecting the amplified DNA sequence.